FACT SHEET

JNIC FACT SHEET 02-011

Missile Defense Integration Exercises

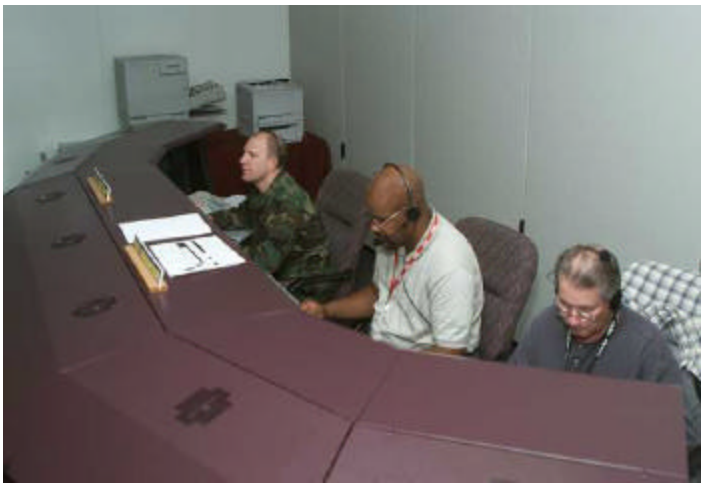
JNIC OVERVIEW

The Joint National Integration Center (JNIC) is a unique national resource specifically designed and built to provide the Missile Defense Agency (MDA) with a center of excellence for joint missile defense integration exercises, wargaming, simulation, modeling and analysis.

MDIE OVERVIEW

The Missile Defense Integration Exercises (MDIE) test program at the JNIC provides the expertise to plan, build, and conduct integration exercises using the Missile Defense System Exerciser. Currently, the JNIC conducts two major integration tests per year with the majority of the missile defense elements and a number of smaller tests, focusing on specific elements or issues. The JNIC currently has connectivity to Army, Navy, Marine Corps, and Air Force elements including PATRIOT, Joint Tactical Ground Station, Airborne Warning and Control System, Control and Reporting Center, Missile Tracking System, Theater High Altitude Area Defense, Aegis, Aerospace Fusion Center depicting Attack and Launch Early Reporting to Theater, and USMC Early Warning Control.

MDIE tests at the JNIC support Major Defense Acquisition Program activities. These tests have been used for risk reduction, integration characterization and verification of milestone exit criteria.



During MDIE test planning JNIC personnel use the Extended Air Defense Testbed (EADTB) for scenario evaluation. The EADTB is an analytic simulation which models missile defense elements and architectures from the fire unit level to the theater and national levels. The Army Space and Missile Defense Command developed EADTB under the direction of MDA. The EADTB node at the JNIC is one of over 30 government and contractor sites worldwide.

JNIC personnel developed the JNIC Data Analysis and Reduction Set (JDARS) – a powerful set of analysis tools that are expanded and tailored for each integration exercise to accommodate changing analysis demands. The JDARS tools are used to analyze data gathered from numerous events to help identify areas of improvement in missile defense integration.

THE PROCESS

Proposed integration objectives are examined to ensure the objectives are supportable within current test capabilities.

Next, event objectives, scenarios, schedules and measures are evaluated and optimized by an event working group composed of representatives from the JNIC, MDA and the participating missile defense elements.

Then test case scenarios are carefully selected from intelligence estimates of current or future threats to produce events that will specifically provide data to support the analysis focus.

Using Distributed Interactive Simulation Protocol Data Units, a real-time threat scenario is injected into geographically distributed tactical sensors and weapon systems allowing individual missile defense elements to operate synergistically in a tactically realistic battlefield. The sensors and systems acquire, track and engage threat missiles. During event execution missile defense elements transmit and receive tactical messages in real-time via their respective tactical communication data nets to a Joint Data Network emulation. MDIE tests also inject live satellite

messages through the Integrated Broadcast Service (IBS) (formerly the Tactical Information Broadcast Service and the Tactical Receive and Related Applications Data Distribution System).

Message traffic is recorded between participating elements, then analyzed to identify integration issues and determine their cause and effect. Typical integration issues examined are:

- Reporting Conflicts
- Dual and Cross Tracks
- Message latencies
- Message corruption
- Compliance with transmit rules

Raw or parsed data from events may also be exported to program offices, or their designees, to facilitate further analysis. An example is the Army Test and Evaluation Command's use of the Missile Defense System Exerciser for PATRIOT Advanced Capability 3 evaluations.

The figure below shows current MDIE test participants. The next major Missile Defense System Exerciser upgrade is expected to include the Airborne Laser.

CAPABILITIES

The JNIC has a comprehensive capability to perform MDIE testing and analysis including:

- Pre-event planning and documentation
- Test case development using EADTB and the Missile Defense System Exerciser
- Event execution
- On-site event support
- Sophisticated post-event analyses using JNIC post-processing tools (JDARS)
- Generation of comprehensive test reports
- Use of system and subject matter experts
- Data export

Integration exercise capabilities are increasing as subsequent Missile Defense System Exerciser versions are released and tactical driver software upgrades are installed at the individual missile defense elements. MDIE exercises provide an opportunity to evaluate each missile defense element software upgrade in a joint and cost effective environment using the actual hardware and software vice simulations.

STATUS

The JNIC integration evaluation capability is fully operational using Missile Defense System Exerciser Build 3.3. Successive builds will add functionality, fidelity and additional operational facilities.

AVAILABILITY

If you would like more information about the JNIC MDIE test program, please contact us at:

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